(6) $5000(1.15)^{12} = \boxed{26,751.25 \text{ bacteria}}$

(7) $25000(.75)^5 = \boxed{\$5932.62}$

(8) 102, 108, ... 198

$198 = 102 + (n-1)6$

$96 = 6n - 6$

$102 = 6n$

$\boxed{n = 17}$

(9) $3 + 6 + 9 \ldots + 99$

$99 = 3 + (n-1)3$

$96 = 3n - 3$

$99 = 3n$

$33 = n$

$S_{33} = \frac{(3+99)33}{2}$

$S_{33} = \boxed{1683}$

(10) $S_n = \frac{.05(1-2^{17})}{1-2} = \frac{.05(1-131072)}{-1} = \frac{.05(-131071)}{-1}$

$= \$6553.55$ total

great deal!

$a_{17} = .05(2)^{16} = \boxed{\$3276.80}$ on Aug 31

(11) the series is infinite because $r = \frac{9}{10}$

but the sum $S_n = \frac{20}{1-\frac{9}{10}} = \frac{20}{\frac{1}{10}} = 200$ cm is finite